AIR COMMAND AND STAFF COLLEGE

AIR UNIVERSITY

Operational Assessment of CAS in COIN: Airing the Ground Truth

by

Brian D. Vlaun, Maj, USAF

A Research Report Submitted to the Faculty

In Partial Fulfillment of the Graduation Requirements

Advisor: SQNLDR Craig T. Stallard, RAAF

Maxwell Air Force Base, Alabama

April 2010

Disclaimer

The views expressed in this academic research paper are those of the author and do not reflect the official policy or position of the US government or the Department of Defense. In accordance with Air Force Instruction 51-303, it is not copyrighted, but is the property of the United States Government.

Abstract

The evolution of air-ground doctrine over the past 100 years shapes the role of CAS in today's COIN environment. This continuous evolution of doctrine as manifest through improvements to employment practices, command and control methodology, and inter-service relationships tests the limits of the air component to assess CAS effectiveness and efficiency at the operational level of war. The supporting role of the air component to provide CAS in a COIN fight requires a re-tooling of the assessment process literally from the ground up. Improved assessment will better capture and synchronize the dynamics of the desired effects requested by the tactical ground commander to air and land component operational objectives and link more effectively to JFC objectives. The key to assessment of CAS in COIN is a renewed emphasis on and deeper understanding of the limits of optimizing efficiency and means by which the air component can maximize effectiveness to fly, fight, and win the COIN campaign.

Introduction

Throughout the last 100 years, the evolution of airpower has paralleled the evolution of warfare, including current day counterinsurgency (COIN) operations. The broad range of non-kinetic and kinetic effects and capabilities employed by airborne, space, and cyber assets provide a vital enhancement to the COIN environment. This holds especially true in circumstances where friendly forces operate in small teams, highly susceptible to ambush, where the timeliness of integrated airborne assets can mean life or death. Much of the doctrine upon which Close Air Support (CAS) assessment developed assumed kinetic attacks on a linear battlefield, which simply do not hold true for COIN. Despite improvements in capabilities and integration, the Air Component capability to assess and evaluate CAS requirements and its influence on dynamic operational objectives remains ineffective, limiting airpower from fully synchronizing with the JFC objectives.

Measurement paradigms emphasizing efficiency metrics over effectiveness strike at the very core of unraveling the limits of CAS to the Joint COIN environment. Air Operation Centers (AOC) often employed efficiency metrics as measures of performance (MOPs) and overstate their correlation to mission effectiveness. MOPs (discussed in detail later) may be useful at the AOC level to assess planning, force posturing, training, and execution, but should not be the primary means of determining the contribution of Joint Force Air Component Commander (JFACC) assets to the Joint Force Commander (JFC) mission. Joint doctrine recognizes this gap, yet providing more relevant data to the Operational Analysis (OA) team requires retooling the feedback mechanisms within the Theater Air Ground System / Army Air-Ground System (TACS/AAGS). TACS provides the critical Command and Control (C2) architecture and manpower linking the CFACC intent to the battlefield via the AOC and Air Support Operations

Center (ASOC), down to the Joint Terminal Attack Controller (JTAC) or other Tactical Air Control Party (TACP) element.[1]

Improvements to OA necessitate a fresh mindset toward embracing the flexibility of airpower to meet the dynamics of COIN rather than leaning on easily captured data such as command and control efficiency and rapidity of kinetic ops. Breaking down barriers to the joint aspects of airpower in COIN emanates from the ability of the AOC to assess with accuracy the impacts of airpower to JFC objectives across a changing battlespace. The thesis of this paper is that the key to enhanced operational assessment with airpower support to COIN is the capturing of the dynamic effects desired by the tactical ground commander and improvement across the full-spectrum of reporting and analysis.

While airpower may lead certain aspects or operations of a COIN campaign, the fundamental assumption for CAS is that airpower *always* supports the land component. As such, the tactical ground commander requesting air effects must synchronize those effects with Land Component Commander (LFC) objectives, which in turn, nest within JFC objectives at the operational and strategic levels. To assert that air component objectives must equal land component objectives for CAS would falsely imply that the air component is not only the supporting command, but also subordinate to the land component.[2] The air component is subordinate to the JFC, not the LCC, and it is the role of commanders and airpower employment experts residing within the air component to determine air component objectives. However, this does not diminish the importance of aligning air and land operational objectives with CAS in mind under JFC objectives for COIN. The robust improvements discussed in this paper should expose discrepancies, should they occur, in the different components' aims for airpower.

Effectiveness versus Efficiency

The strategy to task concept is the traditional top-down methodology used for developing assessment measures during the planning process. RAND Corporation conceived the framework, not as an aid to joint air operations planning, but as a defense research and development tool. Strategies were linked to tasks via operational objectives "as a means of defining operational capabilities that a Service is expected to provide…[then demonstrating] what operational tasks relating to the operational objective can be accomplished at what rate during what period."[3] In other words, it was a means of streamlining the acquisitions process to ensure that the Air Force purchased systems with demonstrable capabilities consistent with national security strategy at the end of the cold war. Its logic applies as a linear approach to assessing how well the air component performs a quantifiable task such as the common example of peeling back an Integrated Air Defense System (IADS) toward the objective of establishing air superiority.[4] The framework breaks down, however, when applied to indirect effects, or with airpower in a supporting role to another component's objectives, especially when effectiveness data isn't ably captured by the supporting or supported service. Within the strategy to task framework, JP 5-0, *Joint Operation Planning*, breaks assessment into two key types:[5]

> Measure of performance (MOP) — A criterion used to assess friendly actions that is tied to measuring task accomplishment.
>
> Measure of effectiveness (MOE) — A criterion used to assess changes in system behavior, capability, or operational environment that is tied to measuring the attainment.

Dr. Kem suggests that the differences between the two are internal (MOP) versus external (MOE), or that "MOPs relate to accomplishment of the task, and MOEs relate to the accomplishment of the purpose."[6] For CAS, MOPs traditionally emphasize objective data such

as response time, ordnance dropped, air support requests filled, and gaps in covereage, which demonstate efficiency. Measures of effectiveness such as forcing militants to disengage, enabling friendly forces to hold particular terrain, or friendly lives saved should relate back to LCC and JFC objectives.

Background of CAS Doctrine

Joint Publication 3-09.3 *Close Air Support* defines CAS as "air action by fixed-wing (FW) and rotary-wing (RW) aircraft against hostile targets that are in close proximity to friendly forces, and requires detailed integration of each air mission with the fire and movement of those forces."[7] This doctrinal definition elucidates the key difference between CAS and air interdiction (AI) which applies to a linear force versus force battlefield as well as to the complex separation of forces experienced in COIN operations. In other words, the distinction between the two missions is independent of the target location with respect to the Fire Support Coordination Line (FSCL) but relates more importantly to the integration required to release weapons close to friendly forces. To perform the CAS mission implies at least a basic understanding of the ground scheme of maneuver, including the location of friendly and enemy forces, and the ability to integrate with sufficient detail to achieve the desired effect without unintended consequences. Air Force Doctrine Document 2-1 *Air Warfare* broadens the first part of the joint definition to include the use of any "aerospace assets to directly support the ground force,"[8] while also including the stipulations of proximity and integration. Air Force Doctrine incorporates the forward-thinking mentality of achieving effects through integrating cross-domain (i.e. space or cyber) and non-kinetic effects into the CAS battle space.

CAS doctrine and application was not always so precise. Offensive CAS firepower met its debut with the British Royal Flying Corps (RFC) at Battle of the Somme during the summer

of 1916.[9] From its start in World War I, objectives for CAS in support of ground forces were ambiguous and optimistic. According to the theater RFC commander, Maj Gen. Hugh Trenchard, his aircraft "roamed freely over the battlefield… [seeking] to harass the enemy as much as possible and to spoil the morale of his troops."[10] Early objectives for CAS reflected that ground commanders sensed its potential to assist the ground battle with both direct and indirect effects, but many questions about proper command and control, communications, planning, integration, and assessment loomed.

By the end of the war, German CAS instructions stipulated that CAS aircraft "should be concentrated at decisive points."[11] This does not argue for CAS to make the sole contribution to battlefield victory in lieu of ground forces. More accurately, the idea emerged that CAS can serve as an aerial form of reserve forces, applying leverage to overwhelm a vulnerable enemy or bolster a disadvantaged friendly force and avoiding defensive culmination. This early insight with German doctrine persists into 21st century. Current Air Force Doctrine Document (AFDD) 2-1.3 *Counterland Operations* states, "CAS should be used at decisive points in a battle and should normally be massed to apply concentrated combat power and saturate defenses."[12] This aerial reserve mentality does not mean that airpower was (or should be) held in reserve to support CAS, but rather an emphasis on the flexibility of sustained air operations to adjust to a rapidly changing ground environment.

Germans also discovered early on the importance of battlefield situational awareness for CAS aircraft. WWI German doctrine declared, "accurate knowledge of the ground is the first condition for the successful action of [CAS]."[13] This leads to the concept of detailed integration with ground forces, for in order to prevent fratricide, aircrew must understand the dynamics of the ground fight. This was as true for aircraft machine gun employment in WWI as it is for

500Lb Laser-Guided Bomb (LGB) employment today. This integration was perhaps easier to achieve since CAS aircraft fell under division control by default and often decentralized down to the infantry brigade or even regiment.[14] Thus, the persistent argument spawned over the relative importance of detailed planning (including face-to-face interaction) or the ability for air assets to arrive on scene when needed and build enough situational awareness to execute successfully. The later argument tends to prevail in today's resource limited environment.

Doctrine for Command and Control (C2) of CAS forces advanced considerably during World War II. Published in 1942, Field Manual (FM) 31-35 *Aviation in Support of Ground Forces*, formally distinguished CAS from interdiction and air superiority.[15] It delineated ground commander tasks as "determining the mission, the method of air support, the units to receive support, and the area of operations, and also made the final decision on the priorities assigned to targets." [16] Meanwhile, the air commander "decided the method of attack and the equipment to be used and issued orders to his air units, laying out priorities, attack times, bomb loading, and flight routes."[17] This clear separation of tasks served to alleviate command tension, but did not facilitate assessment. The Air Force would face a greater tendency to collect data supporting its own commander's tasks such as sortie timelines and weapons expended rather than effectiveness of methods and adherence to priorities as dictated by the supported command. The later data could give airpower a better sense of how well it supports the ground component when considered alongside the internal MOPs. Internal performance measures remained preeminent in airmen's minds and by early 1944, USAAF employed tactical air control centers using "prearranged and call missions, interconnected communications nets, and numerous liaison personnel… to [perform CAS] in the most efficient way possible."[18] This exemplifies that United States Army Air Force (USAAF) focused initiatives on command and control improvements to

expedite CAS processes rather than optimizing equipment or doctrine to make CAS more *effective*.

Doctrinal backlash from poorly coordinated COIN in Vietnam led to a refocus on Cold War preparations for large-scale conventional battle in Europe. This initiated with "Active Defense" (1976 version of FM 100-5 *Operations*), which included "heavy emphasis on firepower and attrition."[19] The role of CAS in Active Defense was not prevalent, but required "at critical times and places where victory or defeat may hang in the balance," and the Army acknowledged that targeting of enemy air defenses would benefit both services.[20] Development of the Army's AirLand Battle concept (1982 version of FM 100-5) marked a transition toward "lightening-fast maneuver using mechanized forces supported by tactical airpower."[21] While much of AirLand Battle's controversy stemmed from how Air and Land forces should synchronize to permit deep strike operations, it also reinforced the parochial Army viewpoint of subservient airpower. The role of the air component in maneuver warfare was thus, "to enable, augment, and protect land force operations."[22] The implication for CAS was a perception of tactical aircraft as an extension of the ground scheme of maneuver, perpetuating in ground commanders a mindset that they knew best how to employ tactical airpower.

Differences over integration and employment at the tactical level led to an even larger rift in command and control perspectives at the operational level. In Desert Storm, for example, corps commanders sought to seize control of air forces within their areas of operations, and extended their reach by expanding the FSCL further than necessary.[23] While Air Force leaders saw this as a manipulation of doctrine inhibiting interdiction operations, ground commanders demonstrated that for them, synchronization of CAS with maneuver meant control or even ownership of air assets. In response to the lessons of Desert Storm, the 1993 version of FM 100-

5 acknowledged the control arguments without offering a solution: "Among the disparities that adjacent and supporting commanders must reconcile are dissimilar TACON measures, differences in tactical methods and operating procedures, differences in using other service capabilities such as CAS."[24] Unrealistically, doctrine empowered ground commanders at the lowest levels to solve these disparities.

A bottom up approach to C2 is disastrous when married to the centralized control, decentralized execution viewpoint of USAF doctrine. This is because standardization of command and control enables the flexibility of CAS aircraft to traverse operational areas as the dynamics of the battlefield, such as weather, enemy maneuver, and desired effects change. Aircraft from anywhere in the Joint Operations Area (JOA) must arrive on station with an expectation to perform CAS without struggling to adapt to agreements between local ground commanders and their air liaisons.

Armies have espoused subordinate initiative since Helmuth von Moltke led the Prussian General Staff in the mid-1800s, heralding an idea that transferred to America during the Civil War, and later codified into US Army doctrine as *mission command.*[25] While both services empower lower level of command through decentralized execution, the Army permits greater adaptation of C2 to meet local conditions. In other words, if a method is not delineated as Standard Operating Procedure (SOP), then it can be changed. FM 6-0, *mission command*, implies leeway for subordinate commanders to alter the C2 system itself: "The art exercised by commanders with respect to the C2 system lies in their expert integration of all C2 system elements to best serve their needs in pursuit of mission accomplishment."[26] The Army definition of C2 includes not only procedures, but also the entire "arrangement of personnel, information management, procedures, and equipment and facilities essential for the commander to conduct

operations."[27] This doctrinal development reinforced Army desire to exercise command over CAS assets with priorities determined by operational ground commanders similar to artillery or other fires measures.

Flexibility permitting ground commanders to react to local conditions is not a bad thing, nor is it necessarily degrading to the employment of airpower. In modern day COIN operations, pilots do not perform CAS using vastly different procedures in different provinces of Aghanistan because Special Instruction (SPINS), rules of engagement (ROE), and joint publications enforce standardization. What can be vastly different, however, are the expectation of ground commanders in terms of effects desired, ordnance required, relationships with JTACs, and use of forward observers. One commander may have a strong predilection toward organic fires whereas another may have apprehension functioning outside of forward operating base (FOB) without dedicated airpower. The challenge for the Air Force in a supporting role is in meeting the individual ground commander's needs, while managing to demonstrate optimization of CAS capability across the JOA. In other words, effective use of airpower in one region may not be as effective in another. On the other hand, the same aircraft often support multiple regional commands, while seeking to meet the same JFC objectives with effectiveness and performance measured by the same standards.

Influence of Modern Service Docrtine

While there is little argument over the Air Component commitment to CAS in current operations, Air Force doctrine nevertheless contributes to stagnation in CAS assessment methodology. Joint Publications and Tactics, Techniques, and Procedures (TTP) forge ahead, while Air Force level CAS doctrine compounds the issue by clinging to Vietnam era service culture. For example, AFDD 2-1 *air warfare* archaically states, "CAS should only be used when

the surface force cannot handle the enemy with organic firepower."[28] This doctrinal mentality is outdated because implies a serial approach to the application of force, using static deconfliction measures at a time when joint C2 capabilities could not support detailed real-time integration of air and ground assets, such as during Vietnam. Modern measures for air-ground coordination suggest "options that are more dynamic, with air sorties and Army fire support continually monitored and controlled to coordinate fires to maneuver forces [enabled by] real-time exchange of plans as they change."[29] CAS enables more than simply airpower as a backup to Army fire limitations, but the flexibility and economy of force of employing joint fires dynamically as the ground situation unfolds.

Further, only using CAS when Army firepower exceeds its limits misinforms the Joint planning process. When CAS is reserved only as a "glove save" option during execution for Joint Force operations it receives decreased, if any, planning priority. Implications of this decision result in potential costs to responsiveness, integration, synchronization, and ultimately effectiveness. It also degrades the assertiveness (or perhaps inclusion) of Air Force liaisons in coordinating CAS when ground commanders might be excessively predisposed to organic fires. Such was the case during Anaconda, as a key lesson identified was the failure to include airmen "in CJTF Mountain's and the covert SOF community's planning processes from the very start."[30] The Course of Action (COA) chosen for Anaconda arguably lacked sufficient incorporation of the major forces required and deserved dismissal as incomplete and thus invalid per JP 5.0.[31]

Even if a JFC employs CAS only to mass firepower as an airborne reserve (as AFDD 2-1 suggests), Air Force doctrine further stipulates, "CAS is not considered the most efficient mission for aerospace power."[32] Such verbiage suggests that air assets ought to be doing something they can perform with less expense of time and resources. CAS is, by Air Force

doctrine, secondary to more "efficient" missions, at least in terms of organization, training, and equipment priorities. While force posturing to support ground forces is not likely an efficient means of affecting the centermost of Warden's rings, it may still be the most efficient and important means of supporting JFC objectives. Consider that despite the debatable CAS response time criticism by the Army of Operation Anaconda (discussed later), "fixed-wing air power did most of the work originally envisaged for organic Army fires."[33] This was due not to the fact that air power was ordered to *inefficiently* replace Army fires, but because air force assets were capable of achieving decisive effects despite the adverse weather and unanticipated strength of the enemy force.

Even the more recent (2006) AFDD 2-1.3 states "to be most effective … CAS should be used at decisive points in a battle and should normally be massed to apply concentrated combat power and saturate defenses."[34] This mindset biases toward CAS in support of offensive ground maneuver or supporting defensive operations in a conventional battlefield. This is a problem because mismatched (service to Joint) doctrine translates to bad inputs at the top levels of the top-down approach to Operational Assessment. Doctrine influences strategy and thus leans the AOC toward assessing CAS in COIN for the wrong type of warfare. Cumulatively, Air Force doctrine emphasizing the efficiency and decisiveness of airpower slants the assessment of implied tasks for the air component in COIN toward kinetic operations (hacking stopwatches and counting bombs), a limit in scope which fails to inform the commander of the complete picture.

Historical CAS Assessment

A deeper look into CAS history indicates the trend of biased assessment. Declassified reports from the Vietnam era indicate an Air Force tendency for assessing CAS in terms of efficiency metrics such as tactical air response time. Analysts defined Tactical air response time

as "that period beginning when the [Direct Air Support Center] receives an immediate… request for air support and ending with the first delivery of ordnance."[35] Operational Analysis in 1970 by Headquarters Air Force boasts that nearly two thirds of all sorties required no delay in the target area except for "FAC briefing and target marking," and included an analysis of factors causing target delays in other sorties such as Ground/Army coordination, clearance, fuel burnoff, target weather, etc. [36] Such reports indicate an Air Force belief that increasing efficiency directly equated to improved CAS. In other words, the mission is successful if the aircraft arrives on station and employs ordnance, regardless of the effect of those weapons on the enemy, or their contribution to JFC objectives.

Reliance on efficiency data also results from the complexity of obtaining effectiveness data. During Vietnam, "the Army could not distinguish the effects of Air Force CAS, and the Air Force neither understood the objective they were supporting nor had the data to assess effectiveness."[37] Rather than to innovate new means of assessment and mandating Joint methodologies, the Air Force chose, instead, to assess what it could measure. As a result, "Success came to be measured more by such quantifiable yardsticks as the readiness rates of aircraft, the rapidity of their response to emergency calls for help, sortie rates, and tons of ordnance dropped rather than by the direct effect these activities had on the enemy."[38] The limited scope of objective analysis and emphasis on response time helped the Air Force justify CAS with jets in post-Vietnam years. This would serve as the tipping point for why the Air Force doesn't use propeller aircraft for CAS in COIN 35 years later.

There were attempts to develop effectiveness metrics in Vietnam, but they were vague and highly subjective. A 1967 analysis of 15,000 CAS sorties claimed that "50 percent of the air strikes reduced 'heavy' enemy fire to "light,' while another 23 percent of the sorties had ended

the ‘heavy’ fire altogether.[39] Arguably, if the definitions of heavy and light were standardized, while other variables, such as the combined use of artillery or helicopters could be isolated, this data might be useful. As other ground commanders noted correlations between decreases in friendly casualties and proper airpower employment, this data was also subjective.[40] Despite vague attempts to capture effectiveness, operational assessment processes generally clung to objective data, which led to conclusions about effectiveness actually using performance data.

Another argument suggests that not only was effectiveness data too subjective, but the processes themselves were broken. In the war in South Vietnam, “Even had it been possible to sort out the effects of different weapons, there was still no way to relate such information to the overall U.S. war objective.”[41] Lacking a framework for linking CAS tasks to operational objectives, CAS analyses were confined to tactical observations; hence quick bombs were good bombs. The false assumption that efficient CAS was necessarily effective CAS enabled analysts to draw broader conclusions about how well airpower supported the ground fight. The broader spectrum of indirect effects on the battlefield today exacerbates this tendency to broaden conclusions.

A closer review of CAS in Operation Anaconda exhibits progress in the Air Force view of CAS since Vietnam, but not its assessment thereof. For example, improvements in air-ground coordination “enabled the CAOC to build and execute an air plan designed to achieve [desired] effects at minimum cost in time and risk to friendly lives.”[42] While enhancements to integration and efficiency are valuable and note-worthy, they do not conclusively demonstrate improvements in effectiveness unless results of those desired effects are recorded, analyzed, and linked back to operational or strategic military objectives.

Beneath the surface, better planning only equated to better execution with proper command and control in place. During Anaconda, the "absence of a full-up ASOC at Bagram equipped to translate [SOF] commander's intent into a systematic CAS prioritization scheme [led to] friction and confusion."[43] The presence of a functional ASOC is critical to both execution and analysis because of its ability to translate planning into execution. Not only must the ASOC optimize prioritization of assets to meet the dynamics of commander's intent, but assessment information must be captured from the source, as will be discussed later.

The modern CAS battlefield presented during Anaconda revealed "an umbrella… formed by a constellation of overlapping multispectral sensor platforms," in addition to moving target indicators, Signals Intelligence (SIGINT) packages, jammers, and advanced targeting pods.[44] Despite the technology, Lambeth argues that "those in the CAOC were striving to use air power to achieve the campaign's declared goals," while, "CENTCOM staff remained wedded instead to more attrition-oriented thinking."[45] This divergence shows that planners and operators at the AOC and tactical level will use whatever resources available best to accomplish the mission, while those at the higher operational level may yield to obsolete doctrine or a predisposition to doling tasks that are easy to assess. In effect, the broadening of means available to achieve CAS effects incurs a corresponding complexity in how best to marry them with operational objectives. This held especially true in such a chaotic environment with many of the planning oversights fixed dynamically through leadership during execution.

The Ground Perspective

The essence of the supporting role of CAS in either the examples of Vietnam or Operation Enduring Freedom lie in its flexibility to compensate during execution for the limitations of planning. The advent of the ASOC during Vietnam was born out of the need to

decentralize execution authority and better coordinate CAS at the battlefield level between services. The ASOC was the conduit through which the ground commander could divert "preplanned fighter missions to support immediate requests… [or] change target priorities as the situation dictated and to support those ground units under his command."[46] The Army was empowered to change its mind during execution, and the challenge for supporting airpower would be to best anticipate those changes.

Congressional review after Vietnam indicated that differences in expectations between services contributed to problems with assessment. While much of the testimony centered on soldier's opinions of an optimal CAS platform, "Army Vietnam veterans who testified primarily wanted Air Force planes to respond when needed."[47] Issues such as payload, range, speed, communications capabilities, were secondary to simply being there when called, reinforcing that Army commanders preferred organic firepower. According to a 1967 Army report, "commanders in Vietnam liked Air Force CAS, but preferred aircraft that could guarantee quick response and target acquisition."[48] The Army thus set the stage for its own evaluation of CAS with the notion that the closer CAS is to Army control, the more effective it is. The only MOPs that mattered would be how quickly can the aircraft respond, how quickly can the pilot find the target, and how quickly can the target be destroyed. Given the relatively small size of South Vietnam, ground commanders agreed that 20 minutes was a reasonable response time for aircraft already airborne and 40 minutes to scramble alert aircraft and arrive on station.[49]

This perspective toward efficiency changed little over the nearly 40 years that lapsed between Vietnam and Operation Enduring Freedom. The Army opinion of the role of Air Force CAS in Anaconda was generally negative. Gen Hagenbeck, 10th Mountain Division Commanding General criticized CAS response as taking "anywhere from 26 minutes to hours."[50]

He also expressed frustration that "the Air Force had to work through airspace management," inability to employ at low altitudes (below the weather), and effectiveness against moving targets.[51] The tragedy behind the criticism was the failure to fully incorporate the Air Force liaisons and CAOC into the planning process. The last 3 indicate subjective criticism of MOEs without data to support. However, even if based in truth, Air Force visibility into the plan is the key to applying the right assets to mitigate battlefield complexity from weather and moving targets.

COIN Battlefield Dynamics

Close Air Support in COIN is as much about supporting ground forces and saving friendly lives as it is in conventional high intensity conflict. The differences are the ground commander's objectives, the impact of mistakes, and dynamic character of desired effects on the battlefield. These differences highlight that CAS can be less about the offensive employment of firepower and raw efficiency, and more about effectively supporting operational objectives in a realm where tactical success can lead to operational or even strategic failure. For example, while ROE could be strict on the employment of kinetic weapons for warning shots, near misses or delayed fusing can also be an effective means of separating insurgent forces from civilians, by testing the resolve of the later to remain in tacit compliance. In other circumstances, a near miss may induce insurgents to run for cover, leaving hostages or human shield in place, thereby enhancing the PID and targeting options for the ground commander. Unfortunately, MOEs using data suggesting numbers of civilian lives saved aren't easily captured using strat-to-task methodology.

Gen McChrystal declared in his Afghanistan assessment, "Ground commanders must fully understand the delicate balance between strategic intent and tactical necessity [and]

prioritize operational effectiveness within their operating areas by considering the effects of their actions on the Afghan population at every stage."[52] Inherent in this directive is a more defensive mindset, which prioritizes protection of the Afghan people (in addition to coalition forces) on par with destruction of the enemy. A COIN environment is one in which a few civilian casualties can negate the benefit of killing many more enemy. McChrystal goes on to recommend that subordinate commanders prepare for "de-escalation of force within populated (areas), or even breaking contact as appropriate to accomplish the mission."[53] Strategic objectives emphasizing such restraint present complexities in terms of effects. Operational assessment is left to answer such theoretical questions as "how many civilians did airpower keep from dying today?" Gen McChrystal's philosophy suggests that as a campaign progresses further into stability operations and transitioning authority to local governance, efficient CAS by traditional definitions may be a pitfall for effective CAS.

CAS in COIN presents a complex targeting dilemma as well. An enemy that is marginally (if at all) distinguishable from the civilian population and disinclined to adhere to norms of warfare has the asymmetric advantage. Tactics such as attacking coalition forces from buildings containing non-combatants places the burden of proof for legitimate targeting on the coalition, especially when the response includes decisive and overwhelming force. In terms of effects, this is why CAS with full-motion video (FMV) can be as important as the ordnance to achieving military objectives. The ground commander cannot request the appropriate effects, if he doesn't have the situational awareness to sort out friend from foe. While there are obvious limitations to the "god's-eye" view enabled by remotely-piloted vehicles (RPV), it can be an important piece of the targeting puzzle, and help prevent mistakes on the COIN battlefield. This is no way diminishes the necessity of employing decisive force from the air, but emphasizes the

challenges inherent to assessing the potential need to provide multiple effects (such as FMV with electronic warfare and kinetic force) simultaneously, and the ability of these combined effects to support JFC objectives.

Joint Pub 3-09.3 *Close Air Support* is the primary reference for CAS employment. The July 2009 release includes a long overdue discussion of CAS in stability operations including the use of precision-guided munitions (PGMs) "to limit collateral damage while creating the desired effects and mitigating adverse effects."[54] Civilian casualties in a PGM CAS are rarely due to weapons missing the intended target, and more often due to the intended target including civilians within the effective radius of the weapon, unbeknownst to the ground commander. Granted, weapons malfunctions of various types can and do occur, although these risks are conscientiously mitigated by aircrew and ground parties through tactics, techniques, and procedures (TTP). CAS TTPs are generally conservative and emphasize not only safety to friendly forces, but reduction of collateral damage potential. Awareness of the risks to civilians and neutral parties is of consummate importance especially when the civilian population is identified as a center of gravity. Assessment practices must strive to capture data on casualties avoided and population supported to build the complete picture of CAS effects in COIN.

JP 3-09.3 also acknowledges that CAS in stability operations also provides "a flexible and timely forward observation platform, limited defensive capability for troops in contact, a show of force deterrence option, route and ground convoy security, and an aerial quick reaction force."[55] From the ground commander perspective, the desired effect for immediate CAS can be the fulfillment of a key Commander's Critical Information Requirement (CCIR) such as identifying enemy concentrations or simply providing an asset overhead due to an increase in perceived risk to ground forces. These non-traditional roles for CAS provide the bulk of

operations in a COIN environment. Air force tacticians have categorized and consolidated many of these mission sets as armed reconnaissance, armed overwatch, and Non-Traditional ISR (NTISR). Superficially, these additional naming conventions seem to add unnecessary verbiage and confusion to missions that all fall under the CAS umbrella. However, they enable standardization and integration of TTP across all CAS and NTISR platforms and ground parties. Most importantly, planning processes for the ground component to request armed overwatch for a particular operation or convoy support by a CAS-capable aircraft are identical to CAS in planning, and terminal controllers can switch to standard 9-line CAS as conditions warrant or as directed by the ASOC. These additional mission categories also enable better optimization of airpower by the AOC. Although they demand effects other than traditional CAS, they can still receive priority during planning and execution. This improves CAS effectiveness by enhancing coordination and providing situational awareness for all TACS elements before and during operations. In the spirit of efficiency, they help the AOC to put aircraft where they need to be before troops-in-contact occur and in the spirit of effectiveness, they sometimes keep the troops out of contact altogether.[56]

While matching ground requests to airborne capabilities in real time is important, early assessment of what the ground situation may require next is equally important. In other words, a situation which is likely to last a long time, but unlikely to require significant kinetic options other than a single surgical strike (such as the unexpected discovery of possible High Value Targets) may be optimal for an armed remotely piloted vehicle (RPV). On the other hand, a situation requiring a high-speed dash over hundreds of miles to provide an immediate remote video feed with a likelihood of significant kinetic effects (but not forward firing ordnance) might be optimal for a B-1 Bomber. This could be the case if an Army patrol is pinned in a valley

based on SIGINT of enemy forces waiting on a ridgeline. Both immediate air support requests may only specify Full Motion Video (FMV), but the art and science of tasking assets during execution is left to the ASOC. Improved after-action assessment can better provide the ASOC with feedback on performing this C2 art of CAS and enhance the empowerment and joint confidence in decentralized execution.

Flexibility in providing FMV to the ground commander, with the right asset for the situation, not only enables the timely employment of ordnance should the ground situation escalate, but may also keep it from escalating. CAS aircraft in support of stability operations enable ground forces to *appear* less offensive by deploying less artillery and organic firepower.[57] By reducing the offensive footprint and potentially force protection requirements of ground troops, CAS enhances partnership with the local population.

Effects-based operations (EBO) applied at the tactical level enable platforms to integrate effects and contribute to multiple simultaneous operations, yet assessment of non-kinetic effects in conjunction with kinetic effects are both nebulous and fleeting. They are nebulous since the impact from effects from shows of force, electronic warfare (EW), and confidence instilled in ground troops from armed reconnaissance can be subjective. They are fleeting because a JTAC may work with a half-dozen or more aircraft in a day, and once the engagement is over, debrief data is often lost. Typically, a JTAC will fill out a misrep after returning to the Tactical Operations Center (TOC) after the mission is complete.

Command and control methodology and stove-piped planning processes for ISR operations precludes effective reprioritization and tasking of assets in support of Close Air Support (CAS) when available and appropriate. Collections Management Authority (CMA) as defined in JP 2-0 *Joint Intelligence*, is "the authority to establish, prioritize, and validate theater

collection requirements, establish sensor tasking guidance, and develop theater-wide collection policies."[58] Although the JFACC retains OPCON of Air Force Intelligence, Surveillance, and Reconnaissance (ISR) assets, he does not possess CMA, with TACON over other ISR assets, unless designated by the GCC.[59] Even when such authority is delegated, convoluted lines of authority and collections operations management (COM) processes complicate the C2 environment for COIN. For example, some ISR missions, such as tracking a high value target (HVT), may be justifiably immune from responding to troops in contact (TIC). On the other hand, a fighter aircraft supporting troops in contact probably should not be reprioritized from its primary mission to support an urgent ISR request. CAS capable platforms may be allocated, prioritized and tasked at the AOC level (via PRISM) as ISR assets and protected from lower TACS echelons and coalition partners.[60] While this may be appropriate some of the time, it is neither necessary nor appropriate all of the time. During COIN operations, greater decentralized execution may be the key to success, so planning and tasking systems must be compatible with ASOC and Combined Joint Operations Center (CJOC) processes, especially in multinational environments. Further, incorporation of non-kinetic assets (such as Rivet Joint or EA-6B) typically are not available for tasking at the ASOC level, even when their higher priority mission may allow for simultaneous support of original tasking as well as the dynamic needs of the battlefield. While integration can and does occur, it is left primarily to ad-hoc participation when conditions permit, further complicating the assessment process. When multi-role and non-kinetic assets achieve combined effects in support of CAS, mechanisms must exist to assess their overall effectiveness.

Modern Role of Operational Assessment

The role of the CAOC Operational Assessment Team (OAT) lies in "evaluating effectiveness and efficiency of air, space and IO in concert with efforts, observations and inputs of other members of the AOC and external organizations."[61] While AFTTP 3-3.AOC stipulates that these analyses only apply to the tactical level, it also asserts that OA responsibility includes "evaluating effects achieved on the adversary's strategic and operational COGs."[62] If it is difficult to assess the role of airpower to directly effect strategic COGs, it is an order of magnitude more difficult to do so with airpower in a supporting role. Lessons of the past indicate an airpower tendency to conduct internal assessment – that is, how well is the air component performing its missions with respect to the objectives of airpower. For CAS at the AOC level, OA traditionally focuses on how efficiently airpower responds to provide CAS rather than how effective is CAS is in fulfilling supported command's objectives. As discussed, the JFACC's objectives optimally synchronize with JFLCC objectives as the supported command as well as the JFC objectives as the higher headquarters. "The final step in the cycle – assessment – evaluates whether air and space operations are creating the desired effects and achieving the JFACC's objectives."[63] The problem is that in a joint environment, especially with airpower in a supporting role, traditional means of assessment lacks the comprehensive picture of how airpower is truly supporting the fight. The crucial missing element to linking MOPs to MOEs for COIN lies in demonstrating what effects the tactical ground commander requested (in planning as well as during execution), the effects he received, and how they relate to the JFLCC as well as JFC objectives.

A new operational assessment paradigm suggests that the key to airpower assessment in the supporting role is through cross-command relationships, and that "the air component [must]

ensure reliable insight into the effects it provides by establishing feedback mechanisms."[64] Clearly, the feedback is the key and the solution complex. While the JFC staff is responsible for evaluating progress toward joint operational objectives, it is unrealistic and inappropriate for the supported command to assume sole responsibility for determining assessment metrics for the supporting command. Nor, however, can a supporting command assess its own effectiveness and expect to reach the same result as the supported command. Liaison positions must be tasked during the planning process to ensure the right data is captured during execution, validated by both commands, and applied to pre-determined metrics.

Current Strategy-to-Task methodology as delineated in AFTTP 3-3.AOC *Operational Employment - Air and Space Operations Center* (U) is too linear and service-oriented for effective assessment. While it suits the logical diffusion of specified and implied tasks from strategic level objectives, it places the AOC at an analytical disadvantage. Strat-to-task works for tasking, but task-to-strat does not work for assessment. It is too linear because one cannot assess the synergy of combined effects on the battlefield by evaluating the individual parts in isolation. In other words, the OA staff can collect data indicating a decrease in CAS response time or increase in ordnance expended and attempt to correlate that to indicators of successful ground operations such as reduced casualties or decreased enemy aggression, but that isn't the full picture. This methodology worked in service-dominated operational environments, hence the common over-simplified example for Air Superiority: The Air Force establishes the Operational Objective (OO) of Air Superiority by completing (among others) the tactical objective (TO) of neutralizing the air defense system via specific tactical tasks (TT) such as destroying x% of EW radars.[65]

Effects in the COIN environment are neither linear nor service-dominant, nor should be the methodology for assessing them. A joint, holistic approach at the engagement level is the most viable means of obtaining the ground truth.

The Way Ahead

The Joint Force cannot identify and resolve critical improvements to CAS for COIN until the Air Force improves methods of assessment. Joint doctrine should adopt a new bottom up approach to assessment for supporting command relationships, especially for COIN. Strat to task framework is a tool for deducing tasks through objectives but falls short for COIN assessment. A new, customer-oriented approach to assessment would better suit CAS in a supporting role. This new approach should build on practices adopted from service-oriented private industry rather than defense R&D constructs. The customer in this case is any ground commander with authority to request airpower down to the company level or below.

Performance and effectiveness of each airpower capability and requested desired effects must be captured to the maximum extent possible. The idea is not a new paper-work approach to joint warfare, nor is it a suggestion that the debrief is more important than the mission in combat. This largely occurs already, but there is an emphasis on kinetics and other effects, tracking only whether or not and when they occur (such as a show of force). Narrative format misreps are helpful for investigations, but are impractical for automated processes necessary for assessment. A new stream-lined approach to JTAC misreps, synchronized with data and reporting of aircraft misreps would greatly assist the assessment process.

Standardization of subjective observations is required. While many would argue that this is unrealistic, an attempt to establish basic guidelines and rules of thumb could enhance accuracy. These guidelines, disseminated as joint TTP (tactics, techniques, and procedures) must

be incorporated into theater spin up training for air and ground forces. A more robust challenge lies in assessing the synergy of multiple effects in the same target area. Misreps must include, at a minimum, data supporting MOEs for multiple assets. These would include a coherent list of assets affecting a similar location, including a timeline of effects based on ground party requests.

Increases in data collection requirements incur an increase in manpower, or at least a reprioritization of some intelligence and operations center personnel requirements. Intel personnel already in TOCs and ASOCs already have requirements for misrep collection and reporting. Funding a better computer based element of TACS or including automated assessment into the Global Command and Control System (GCCS) or Theater Battle Management Core Systems (TMBCS) follow-on would improve reporting from the current email-based system. Focus on battle damage assessment (BDA) and post-strike imagery analysis for CAS should be secondary to assessment of the change in the ground situation incurred by airpower. Admittedly, this is difficult, but analysis of targeting pod video and ISR assets of the scene provide better assessment insight than the size of the crater or destruction of a house based on the location of the enemy. In other words, the assessment piece needs to include what did the enemy actually do, and what were the ground forces able to do based on the effects requested of airpower.

Finally, improving the assessment of CAS in COIN operations both necessitates and begets breaking down inter-service barriers for CAS. Lessons of Vietnam showed that Army considered CAS effective more due to the abundance of assets and quick response times than the actual capability of the aircraft. Anaconda showed just the opposite. Since weather, geographic limitations, and target area congestion limited the ability of Air Force assets to respond when called, Army commander's complained. The first step to breaking down barriers is an Air Force

led approach to improving assessment described above. Once these measures are in place, and better assessment data and analyses surface, Army commanders will have better access to truth data, Air Force impact on Army objectives. Army Commanding Generals will also see what their lower level commanders requested (as the customer) and the desired effects they received. Ultimately, the potential for CAS in COIN and exposing its strengths and areas of improvement lies in understanding the evolution of CAS doctrine, its role in shaping service relationships, and improving assessment from the ground up.

End Notes

[1] AFTTP(I) 3-2.17, TAGS, p.V3-V11.
[2] ACSC guest lecturer. Wood Auditorium, April 2010.
[3] Kent, Framework for Defense Planning, 16.
[4] Clark, Practical Approach to EBAO, p.92.
[5] JP 5-0, Joint Operation Planning, III-61.
[6] Kem, Campaign Planning, p.120.
[7] JP 3-09.3, Close Air Support, p.I-1.
[8] AFDD 2-1, p.11.
[9] Cooling, Close Air Support, p.17.
[10] Ibid., p.18.
[11] Jones, War in the Air, p.435.
[12] AFDD 2-1.3, p.6.
[13] Jones, War in the Air, p.435.
[14] Ibid.
[15] Schlight, Help From Above, p.33.
[16] Ibid.
[17] Ibid.
[18] Cooling, Close Air Support, p.226.
[19] Grant, Deep Strife, p.54
[20] FM 100-5 (1976), Operations, p3-8.
[21] Grant, Deep Strife, p.54.
[22] Ibid, p.55.
[23] Ibid, p.57.
[24] FM 100-5 (1993), Operations, p.5-4.
[25] FM 6-0, Mission Command, p.1-14
[26] Ibid., p.xiv.
[27] Ibid., p.G-4.
[28] AFDD 2-1, p.12.
[29] Jacobs, Et. al, Enhancing fires, p.67.
[30] Lambeth, Airpower Against Terror, p.221.
[31] JP 5-0, Joint Operation Planning, III-28.
[32] AFDD 2-1, p.12.
[33] Lambeth, Airpower Against Terror, p.226.
[34] AFDD 2-1.3, p.6.
[35] Sandborn, Tactical Air Response Time, p.5.
[36] Ibid. p.5.
[37] Lindsay, Operational Assessment of Space, p. 47.
[38] Schlight, War in South Vietnam, p.290.
[39] Cooling, Close Air Support, p.450.
[40] Ibid., p.469.
[41] Schlight, War in South Vietnam, p.291.
[42] Lambeth, Airpower Against Terror, p.221.
[43] Ibid., p.222.
[44] Ibid., p.253.
[45] Ibid., p.301
[46] Degovanni, Support of Army Ground Operations, p.33.
[47] Campbell, Warthog, p.55.

[48] Ibid, p.73-74.
[49] Cooling, Close Air Support, p.449.
[50] McElroy, Fire Support for Operation Anaconda, p.8.
[51] Ibid.
[52] McChrystal, Afghan Assessment, p. E-2.
[53] Ibid.
[54] JP 3-09.3, Close Air Support, III-15.
[55] Ibid, III-16.
[56] Grant, Armed Overwatch, p.44.
[57] Haun, CAS in LIC, p.108.
[58] JP 2-0, Joint Intelligence, GL-6.
[59] Grunwald, Transforming Air Force ISR, p.3.
[60] JP 2-0.1 *Joint and National Intelligence Support to Military Operations,* V-6
[61] AFTTP 3-3.AOC, Operational Employment, 3-58.
[62] Ibid.
[63] Messer, Timing, p.52
[64] Messer, New OA Paradigm, p.68.
[65] Ibid, p.67.

Bibliography

Air Force Doctrine Directive (AFDD) 2-1. *Air Warfare*. 22 Jan 2000.

AFDD 2-1.3. *Counterland Operations*. 11 September 2006.

Air Force Tactics Techniques and Procedures (AFTTP) 3-3.AOC. *Operational Employment—Air and Space Operations Center.* 1 November 2007.

AFTTP(I) 3-2.17 *TAGS: Multi-Serrive Tactics, Techniques, and Procedures for the Theater Air Ground System*. Maxwell AFB, AL: Headquarters Air Force Doctrine Center, April 2007.

Campbell, Douglas, N. *The Warthog and the Close Air Support Debate*. Annapolis, MD: Naval Institute Press, 2003.

Chavez, Robert M. Jr. *Basic and Operational Doctrine for Airpower in Irregular Warfare*. Fort Leavenworth, KS: Command and General Staff College, 2007.

Clark, Clinton R., Cook, Timothy, J. "A Practical Approach to Effects Based Operational Assessment." *Air and Space Power Journal* 22, no. 2 (Summer 2008): 82-99.

Cooling, Benjamin, F., ed. *Case Studies in the Development of Close Air Support*. Washington, DC: Office of Air Force History, 21 Dec 2006.

Degovanni, George. *Air Force Support of Army Ground Operations: Lessons Learned during World War II, Korea, and Vietnam*. Carlisle Barracks, PA: Defense Technical Information Center, March 1989.

Field Manual (FM) 100-5, *Operations*. Washington, DC: Department of the Army, 1 July 1976.

FM 100-5, *Operations*. Washington, DC: Department of the Army, 14 June 1993.

FM 6-0. *Mission Command: Command and Control of Army Forces.* 11 August 2003.

Grant, Rebecca. “Armed Overwatch: In recent years, close air support has undergone something like a revolution.” Air Force Magazine 91, no 12. (December 2008): 40-44.

Grant, Rebecca. "Deep Strife." Air Force Magazine 84, no 6. (June 2001): 54-58.

Gray, Colin S. *Understanding Airpower: Bonfire of the Fallacies*. Maxwell AFB, AL: Airpower Research Institute, 2009.

Grunwald, Michael, Jr. *Transforming Air Force ISR for the Long War and Beyond*. ACSC Wright Flyer Paper No. 36. Air University Press: Maxwell AFB, AL, January 2009.

Haun, Phil, M. “The Nature of Close Air Support in Low Intensity Conflict.” Air & Space Power Journal 20, no 3. (Fall 2006): 107-110.

Jacobs, Judy. *Enhancing Fires and maneuver capability through greater air-ground joint interdependence*. MG-793-AF, Santa Monica, CA: RAND, 2009.

Joint Publication (JP) 2-0, *Joint Intelligence*, 22 June 2007.

JP 2-0.1 *Joint and National Intelligence Support to Military Operations*, 7 October 2004.

JP 3-09.3. *Close Air Support*. 8 July 2009.

JP 5-0. *Joint Operation Planning*, 26 December 2006.

Jones, H.A. *The War in the Air. Vol. IV*. 6 vols. Oxford: Clarendon Press, 1934.

Kem, Jack. *Campaign Planning: Tools of the Trade*. 3d. Fort Leavenworth, KS: US Army Combined Arms Center, Mar 2009.

Kent, Glenn, A. *A Framework for Defense Planning*. Santa Monica, CA: RAND Corporation,

1989.
Kometer, Michael W. *Command in Air War: Centralized vs. Decentralized control of Airpower*. Ft. Belvoir, VA: Defense Technical Information Center, 2005.
Kugler, Cornelius W. *Operational Assessment in a Counterinsurgency*. Newport, RI: Naval War College, 2007.
Lambeth, Benjamin, S. *Air Power Against Terror*. Santa Monica, CA: RAND Corporation, 2005.
Lindsay, Nathan, J. *Operational Assessment of Space*. School of Advanced Air and Space Studies, Maxwell AFB, AL: Air University, June 2005.
McChrystal, Stanley. *COMISAF's Initial Assessment.* Kabul, Afghanistan: International Security Assistance Force, 30 August 2009. Document declassified by redaction.
McElroy, Robert H. "Afghanistan: Fire support for Operation Anaconda: interview (with) Major General Franklin L. Hagenbeck." Field Artillery, Sep-Oct 2002, 5-9.
Meilinger, Philip S. "Counterinsurgency From Above." Air Force Magazine, July 2008: 36-39.
Messer, Kirsten R. "Timing is Everything: Operational Assessment in a Fast-Paced Fight." Air & Space Power Journal, Summer 2008: 51-60.
Messer, Kirsten, and Shane Dougherty. "A New Operational Assessment Paradigm: Splitting the Stoplights." Air & Space Power Journal 20, no. 3 (Fall 2006): 65-68.
Pinnell, Daniel A. *Tenets of Airpower in an Insurgent Environment*. Carlisle Barracks, PA: U.S. Army War College, 2009.
Sandborn, Richard T., Dolan, Lee E, Jr. *An Examination of Factors Affecting Tactical Air Response Time in South Vietnam*. Operations Analysis paper 70-7, Washington, D.C.: Headquarters, USAF, August 1970.
Schlight, John. *Help From Above: Air Force Close Air Support of the Army 1946-1973*. Washington, DC: Air Force History and Museums Program, 2003.
Schlight, John. *The War in South Vietnam: The Years of the Offensive 1965-1968*. Washington, D.C.: United States Air Force, 1988.
Searle, Thomas, R. "Making Airpower Effective Against Guerrillas." Military Technology 30, no. 3 (March 2006): 30-37.
Wills, Craig, D. *Airpower, Afghanistan, and the future of warfare: an alternative view*. Maxwell AFB: Air University Press, 2001.